

80113-0126 (D2363)

taking into account the end-to-end characteristics of the entire audio delivery and reproduction system. This limited focus tends to compromise the sound quality that is ultimately output.

[0011] Although most digital carriers of audio information (e.g., CDs, DATs, DVDs, etc.) support data fields that contain audio production information and configuration information that can be used to configure the user's audio equipment in the most appropriate manner, there are currently no mechanisms that ensure that there is data in these fields at all or that the data is correct or maintained throughout the delivery channel into the user's environment so that the data reaches the audio equipment in the first place. Further, even if the data fields contain equipment configuration data, there is no mechanism for ensuring that the audio equipment respond to the configuration data in the data fields. Additionally, the focus on data fields in digital carriers provides no defined mechanism for instructing how downstream audio equipment should respond to the configuration data. Further, none of these schemes have the capability to define the audio parameters for analog recordings or distribution mechanisms.

[0012] Table 1 below illustrates examples of typical source creation and delivery channel combinations as well as the mechanism through which the best possible audio reproduction can be obtained. As can be seen in the Table, the system may provide the user with either no indication of the optimal system configuration or may even provide the wrong information. Further, in most cases, automatic configuration is available only in very limited circumstances where the source creation mechanism and delivery channel match, thereby making the determination of the optimal reproduction configuration relatively simple.

TABLE 1

<u>SOURCE CHARACTER -ISTIC</u>	<u>DELIVERY CHANNEL CAPABILITY</u>	Best Possible Reproduction	Best Manual Configuration Indicated Today?	Automatic Configuration Defined Today?
Mono	Mono, stereo, Dolby Digital, etc.	Mono	Usually not	Sometimes
Stereo (L, R)	Mono channel, e.g., mono AM, FM or TV	Mono	Usually Not	No
Stereo (L, R)	Stereo channel, e.g., stereo FM or BTSC TV	Stereo	Indirectly	Usually
Dolby Stereo (Lt, Rt)	Mono channel	Mono	May have conflicting or wrong indications	No
Dolby Stereo (Lt, Rt)	Stereo channel	Dolby Pro- Logic	Possibly a brief on-screen message for video programming	No
Discrete multi- channel	Stereo channel	Stereo or Dolby Pro- Logic, depending on source connection to delivery channel	No	No
Stereo (L, R)	Dolby Digital 2 channel stereo	Stereo	Sometimes	Sometimes
Stereo (Lt, Rt)	Dolby Digital 2 channel stereo	Dolby Pro- Logic	Indicated incorrectly	Yes, but wrong
Discrete multi- channel	Dolby Digital or dts or equivalent	Discrete multi- channel	Yes	Yes

[0013] Referring to Table 2, the end user's audio reproduction equipment adds further complexity in determining the optimal configuration for audio reproduction. Even if the input audio signal from the cable system is optimized based on the source creation mechanism and the delivery channel, the user's audio reproduction equipment will also affect which configuration will provide optimal sound quality.

TABLE 2

<u>Audio Format Input to Audio Equipment</u>	<u>Audio Equipment</u>	<u>Best mode if multi-channel speakers present</u>	<u>Best mode if stereo speakers present</u>
Mono	Stereo	Not Applicable	Mono
Stereo (L,R)	Stereo	Not Applicable	Stereo
Stereo (L,R)	Pro-Logic or multi-channel discrete	Stereo	Stereo
Stereo (Lt, Rt)	Stereo	Not Applicable	Stereo
Stereo (Lt, Rt)	Pro-Logic or multi-channel discrete	Pro-Logic	Stereo
Multi-channel discrete	Multi-channel discrete	Multi-channel	Stereo
Two-channel discrete, conveying Lt, Rt	Pro-Logic or multi-channel discrete	Pro-Logic	Stereo

[0014] Note that neither Table 1 nor Table 2 contains all of the possible combinations and permutations of source creation, delivery channel, and user equipment that can affect sound quality, further illustrating the complexity of the optimization problem. Additionally, even if a given video program provides the user with an on-screen message that the program was produced with certain enhanced audio features (e.g., surround sound) that are available in certain areas, there is no way for the user to know whether the